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B8P PG1 P111

(56) Documents cited
GB 2162818 A GB 1564444 A GB 0739899 A
US 4485926 A US 3758021 A US 3510046 A

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(54) Divisible container

(57) A container or blank therefore comprises a sheet (1) with margins (6, 7) for forming walls by folding at main fold lines (4) spaced in around the edges of the sheet. Perforated lines of weakness (11) extend across the sheet (1), at which it is divisible into separate pieces (12, 13, 14) each being a sub-blank pre-formed with secondary fold lines (15) and slits (16) for forming a smaller container. A lid for the container may be constructed in the same way to be divisible into sub-blanks for smaller lids of appropriate size for the smaller containers.

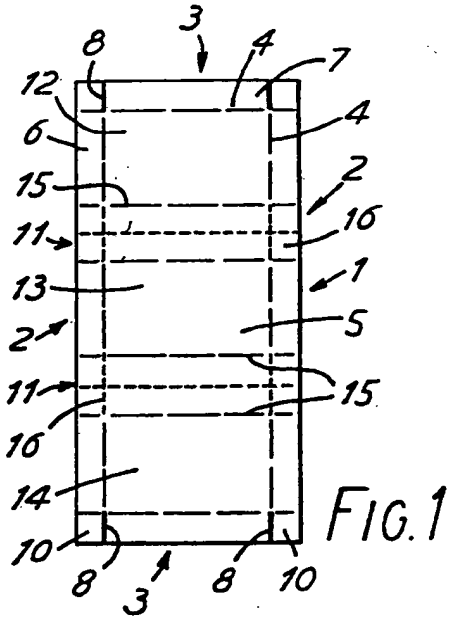

FIG.1

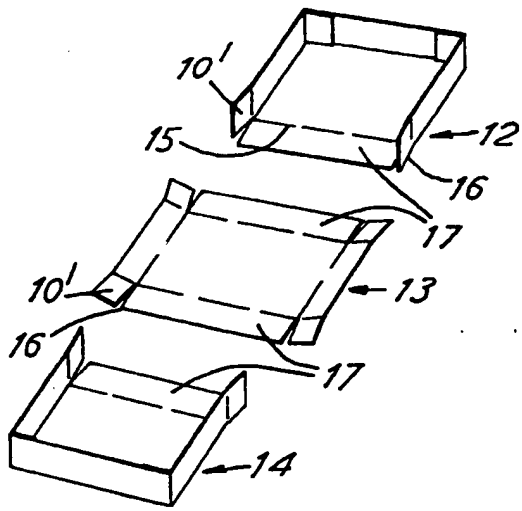

FIG.4

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.
The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

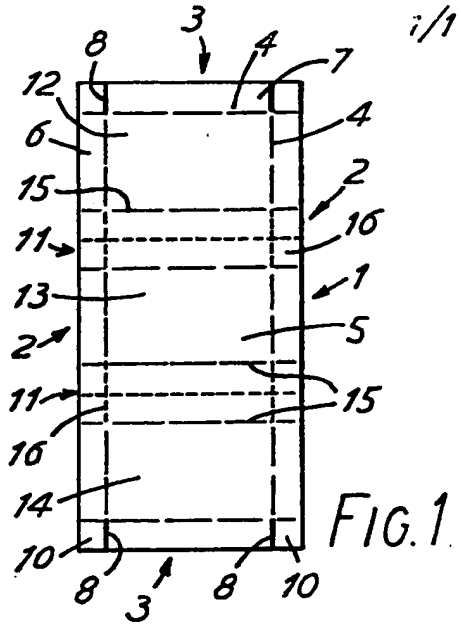

FIG.1

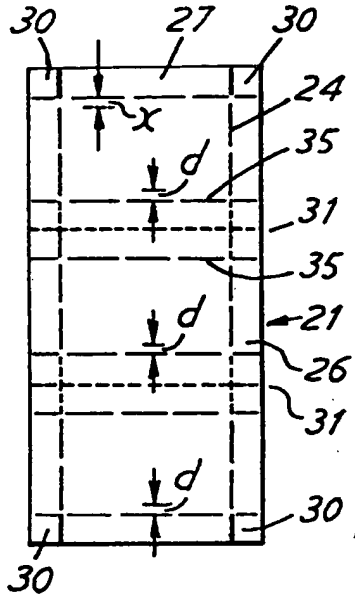

FIG.2

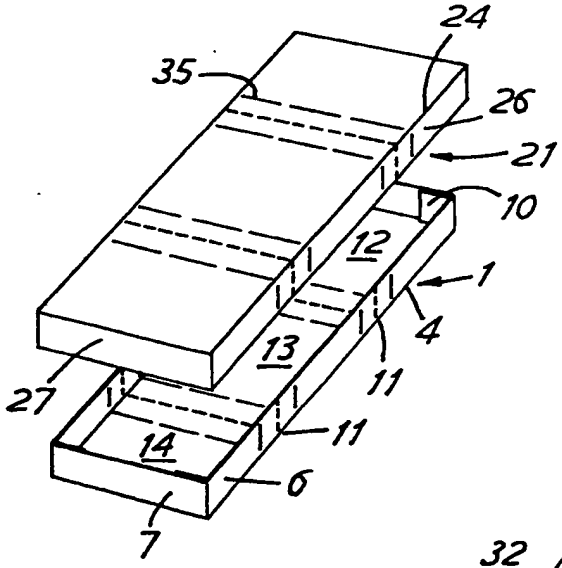

FIG.3

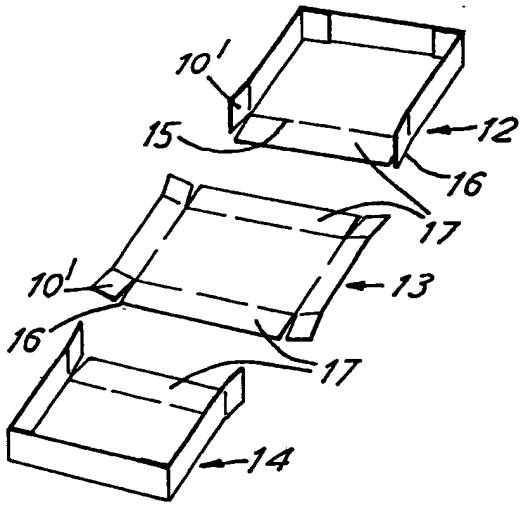

FIG.4

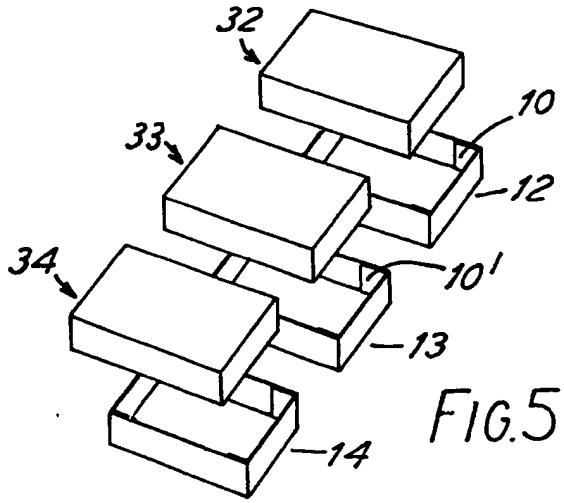

FIG.5

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CONTAINER

This invention relates to containers made from card, paper, board or the like, and to blanks from which they are made.

It is very well known to make such containers (and also their lids when appropriate) from a sheet by folding up the sheet margins, along fold lines spaced in from its edges, to form the container walls. Some appropriate structure is incorporated into the sheet blank so that the excess material at its corners where the walls meet can be accommodated. This may be e.g. by means of cuts extending from the edge of the sheet to a fold line at or adjacent the container corners, so that the surplus material forms a tab or flap that can overlap and if necessary be fixed to the adjacent wall when the container is formed.

It goes almost without saying that, even within a particular field of use, containers of various sizes are often needed. For example, a distributor might acquire goods from a wholesaler in large quantities - and therefore most economically in large containers - yet wish to dispose of them in smaller quantities and therefore have to provide smaller containers for that purpose.

The present invention seeks to provide a type of

container that is more versatile and economical, particularly in such circumstances as described above.

According to the invention a container comprises a sheet of card, paper, board or the like material with its margins folded up along fold lines spaced from its edges to form side walls of the container, the material of the container including at least one pre-formed line of weakness crossing it whereby it may be divided into two or more separate pieces, at least one (preferably each) of which is a pre-formed sub-blank substantially ready to be made into a smaller container.

Each sub-blank may be pre-formed with slits, or with lines of weakness along which slits can conveniently be formed, for forming overlapping tabs or flaps at the angles between the walls of the smaller container made from it.

Each pre-formed sub-blank preferably also has pre-creased, scored, or otherwise marked lines spaced in around its edge at which folds are preferentially formed, to facilitate folding of its margins to form the walls of the smaller container.

The lines of weakness in the material are preferably tear-lines each comprising a series of perforations e.g. die-cut lines.

Advantageously each smaller container has one or

more wall-forming margin portions in common with those of the original container, so that all the folder lines of the latter are used in making the smaller containers.

The container may also have a lid, which is preferably constructed similarly to the container itself (although usually in a slightly larger size) so that it too can be separated up into pre-formed sub-blanks for lids for the smaller containers mentioned above. In another version the container may have a lid formed as an integral extension of one of its side walls that can be hingedly folded down on top of it, in which case the lines of weakness at which the container is divisible may extend right across the lid too.

The invention also includes the pre-formed blanks from which containers and lids as described above can be made.

By way of example embodiments of the invention will now be described, with reference to the accompanying drawings in which;

Figure 1 is a plan view of a blank for a container;

Figure 2 is a plan view of a blank for a lid for the container of Figure 1;

Figure 3 is a perspective view of container and lid after folding into shape;

Figure 4 shows sub-division of the container to form sub-blanks; and

Figure 5 shows the sub-blanks formed into smaller containers with their corresponding lids.

Referring to Figure 1, a blank for a relatively low-walled tray-like container consists of a rectangular sheet 1 roughly twice as long as it is broad, with long sides 2 and short ends 3. The blank is preferably made of "corrugated carboard" i.e. a glued sandwich of a corrugated card layer between two flat layers. Main fold lines 4 running spaced uniformly from the edges divide the sheet surface into a main rectangular central area 5 and relatively narrow marginal strips - two long side strips 6 and two short end strips 7 - which are to fold up to form the container walls. The fold lines 4 may be formed by any conventional method e.g. scoring, pressing, creasing etc., and each extends right to the edges of the sheet 1, except that there is a slit 8 at the end of each long fold line extending from the short edge back to its respective short fold line. Thus the long side strips 6 have square folding tabs 10 on their ends.

Extending right across the blank, one-third and two-thirds of the way along it, are straight die-cut perforated lines 11 by means of which the blank can easily be torn into three regular smaller rectangles

12,13,14. Each die-cut line 11 is flanked on either side, at distances equal to the width of the main marginal strips 6,7, by secondary fold lines 15 that likewise extend right across the sheet 1 crossing the main fold lines 4. The portions 16 of the main fold lines 4 that lie between the two secondary fold lines 15 of each pair, and cross the die-cut lines 11, are themselves die-cut in the same way so as to be easily tearable to form slits when the rectangles 12,13,14 have been separated.

As can be seen in Figure 2, the blank 21 for the container lid is similar in most respects to that for the container. However it is of slightly larger size, so that the assembled lid can telescope over the assembled container. Also, the secondary fold lines 35 are slightly closer to the die-cut lines 31 than the width of the marginal strips 26,27 for reasons that will be discussed below.

Figure 3 shows the blanks assembled into container and lid. The marginal strips 6,7(26,27) have been folded up along the main fold lines 4(24) to form perpendicular walls, and the square tabs 10(30) on the ends of the long side strips 6 overlapped with and glued or stapled to the inside of the short end strips to hold the container in shape. The angles formed between the

walls 6,7(26,27) and base 12,13,14 of the container and lid reinforce them against accidental bending at the secondary fold lines 15.

When it is desired to form smaller containers, the container is torn into three pieces along the die-cut lines 11, as shown in Figure 4. There are thereby formed three rectangular sub-blanks 12,13,14 two of which are already partially assembled. Each of the new edges created by the division has a pre-formed foldable marginal strip 17 by virtue of the secondary fold lines 15 which now become main fold lines of the sub-blanks 13,14,15. Also, the short die-cut portions 16 of the main folding lines 4 are torn along to form square fold tabs 10' at the new edges of the sub-blanks. The new marginal strips 17 are then folded up to form larger walls 17 of the small container, and the new tabs 10' are overlapped with and glued or stapled to them to hold them together.

The lid is treated in exactly the same way to form three small lids 32,33,34 for the small containers, as shown in Figure 5. It is necessary for the lid of a container to be wider and longer than the container by an amount x that depends on the thickness of the material rather than on the size of the container. While the original large container only requires this extra length

once, the small containers call for it three times over. To supply the extra width "d" (see Figure 2) for the lids of the three small containers the secondary fold lines 15 are therefore rather closer to the die-cut lines 11 than the width of the main wall strips, as mentioned above. As a result the wall or skirt of each small lid 32,33,34 is slightly short on the "new" sides, but the difference is so small as to be insignificant in practice.

CLAIMS:

1. A container comprising a sheet of card, paper, or board having marginal portions folded up at fold lines spaced from edges of the sheet and secured together to form sidewalls of the container, wherein the sheet has at least one pre-formed line of weakness extending across it along which it is divisible into separate pieces, a portion of the sheet for forming at least one of said pieces being a pre-formed sub-blank for forming another, smaller container from that piece.

2. A container according to claim 1 wherein each portion of the sheet for forming one of said pieces is a pre-formed sub-blank.

3. A container according to claim 1 or 2 wherein each of the pre-formed portions is pre-formed with fold lines spaced in around its edges for forming the walls of the smaller container.

4. A container according to any one of claims 1, 2 and 3 wherein each of the pre-formed portions has pre-formed slits, or lines of weakness along which slits may be made, for forming flaps or tabs for securing the walls of the smaller container.

5. A container according to any one of the preceding

claims wherein the lines of weakness are perforated lines.

6. A container according to any one of the preceding claims in combination with a separate lid fittable onto the container and formed similarly with at least one line of weakness so as to be divisible into separate pieces, a portion of the lid for forming at least one of said pieces being a pre-formed sub-blank for forming a lid fitting the smaller container.

7. A container according to any one of claims 1 to 5 comprising a lid formed from an integral extension of one of its side walls and foldable to close the container, said at least one line of weakness extending additionally across the side wall extension whereby said sub-blank includes a wall extension portion for forming a lid of said smaller container.

8. A rectangular container according to any one of the preceding claims.

9. A container according to claim 8 wherein each said pre-formed sub-blank is rectangular.

10. A sheet of card, paper, or board pre-formed as a blank for a container according to any one of the preceding claims.

11. A container, container with lid, or blank therefor, substantially as described and shown with reference to the accompanying drawings.

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